

Table 2.7 : Flood Hazard and River Corridor Overlay Districts (FHO & RCO)

The **Flood Hazard Overlay District (FHO)** and the **River Corridor Overlay District (RCO)** add supplemental regulation to properties that lie within their mapped boundaries. **FHO** standards relate mostly to inundation. **RCO** standards relate mostly to potential severe erosion of stream and river banks.

(A) Purpose

The purposes of these districts are to:

1. Prevent and minimize the loss of life and property, the disruption of commerce, the reduction of the tax base, and the considerable public expenditures and demands on public services that result from flooding and fluvial erosion.
2. Allow for the wise use of lands in FHO and RCO areas to minimize potential damage to existing structures and development from flood-related inundation and erosion.
3. Manage land use in RCO areas to provide rivers and streams with lateral space necessary to maintain or reestablish floodplain access and minimize fluvial erosion hazards through natural, physical processes.
4. Ensure that the selection, design and construction of development in FHO and RCO areas are accomplished in a manner that minimizes or eliminates the potential for flood and loss or damage to life and property.
5. Manage land use in FHO and RCO areas in accordance with State and Federal regulations to ensure eligibility for and maximize availability of federal flood insurance, federal disaster recovery funds, and hazard mitigation funds.

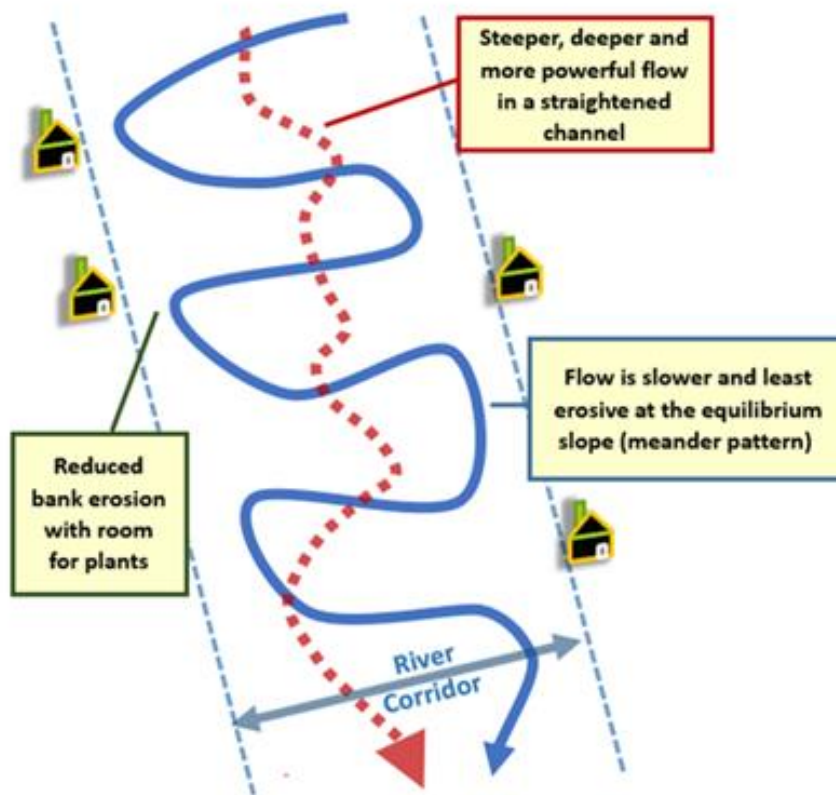
(B) Applicability

These overlay districts standards shall be applied concurrently with the standards for the underlying zoning districts for all property located within their mapped boundaries. Where one district imposes more restrictive standards on the use of land or a structure, the strictest standards shall apply, as authorized under 24 V.S.A., Chapter 117, Section 4414 (2), (Section 2.2(D)).

(C) Area Delineations

The areas of the two regulated flood hazard areas are delineated as:

1. The Calais **FHO** has the same boundaries as the *Special Flood Hazard Area* as shown on the Federal Emergency Management Agency's most current flood insurance studies and maps published by the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), National Flood Insurance Program (NFIP), as provided by the Secretary of the Agency of Natural Resources pursuant to 10 V.S.A. §753, which are hereby adopted and declared to be part of these regulations. The *Special Flood Hazard Area* is the area that has a 1% chance of flooding in any year and includes the floodway. For regulatory purposes, the *Special Flood Hazard Area* is defined in Article 9: Definitions
2. The Calais **RCO** has the same boundaries as the most current *River Corridor* areas as mapped and published by the Vermont Agency of Natural Resources. The **RCO** is the land along rivers and streams that is prone to erosion, and the area needed to accommodate a geomorphically stable river or stream channel. Erosion ranges from gradual bank erosion to catastrophic changes in river channel location and dimension during major storms. Where the **RCO** is not mapped, it shall be the area measured as fifty (50) feet from the top of the stream bank or slope.



3. Base Flood Elevations in **FHO**.

Where available, base flood elevations (BFE) provided by the National Flood Insurance Program in the Flood Insurance Study, and accompanying maps, shall be used to administer and enforce these regulations. In the **FHO**, where base flood elevations have not been provided by the National Flood Insurance Program in the Flood Insurance Study and accompanying maps, base flood elevations and floodway data provided by FEMA, or available from State or Federal agencies or other sources, shall be obtained and utilized to administer and enforce these regulations.

(D) Interpretation of Boundaries

The information presented on any maps, or contained in any studies, adopted by reference, is presumed accurate.

1. If uncertainty exists with respect to the boundaries of the **FHO**, the location of the boundary shall be determined by the Zoning Administrator using the Federal Emergency Management Agency's most current flood insurance studies and maps. If the applicant disagrees with the determination made by the Zoning Administrator, a Letter of Map Amendment from FEMA shall constitute proof of the boundary.

2. If uncertainty exists with respect to the boundaries of the **RCO**, the location of the boundary shall be determined by the Zoning Administrator using the Vermont Agency of Natural Resources' most current River Corridor Map. If the applicant disagrees with the determination made by the Zoning Administrator, a letter of determination from the Vermont Agency of Natural Resources shall constitute proof of the boundary.

(E) Permitted and Conditional Uses in FHO & RCO Districts

(1a) Permitted Uses (FHO)

- (a) Non-substantial improvements¹ to existing structures;
- (b) Accessory structures < 100 sf;
- (c) Building utilities;
- (d) At-grade parking for existing buildings
- (e) Recreational vehicles.

(1b) Permitted Uses (RCO)

- (a) Recreational vehicles.

(2a) Conditional Uses (FHO)

- (a) Substantial improvement, elevation, relocation, or flood proofing of existing buildings;
- (b) New or replacement storage tanks for existing structures;
- (c) Grading, excavation; or the creation of a pond;
- (d) Improvements to existing private roads;
- (e) Bridges, culverts, channel management activities, or public projects which are functionally dependent on stream access or stream crossing;
- (f) Public utilities;
- (d) Development related to on-site septic or water supply systems;
- (h) Channel management

(2b) Conditional Uses (RCO)

- (a) Substantial improvement, elevation, relocation, or flood proofing of existing buildings;
- (b) New or replacement storage tanks for existing structures;
- (c) Grading, excavation; or the creation of a pond;
- (d) Improvements to existing private roads;
- (e) Bridges, culverts, channel management activities, or public projects which are functionally dependent on stream access or stream crossing;
- (f) Public utilities;
- (g) Improvements to existing primary structures in the River Corridors that do not expand the footprint of the existing structure more than 500 square feet;
- (h) New Accessory structures in the River Corridors, of 100 square feet or less, that represents minimal investment;
- (i) At-grade parking for existing buildings

¹ Non-substantial Improvements are any that do not meet the definition of Substantial Improvement

#	Development Activity	Flood Hazard Area Overlay	River Corridor Overlay
1	New Structures	X	X
2	Storage	X	X
3	Storage Facility	X	X
4	Substantial Improvements to Existing Structures	C	C
5	Non-substantial Improvements to Existing Structures	P	C
6	Accessory Structures <100 sq.ft.	P	C
7	At Grade Parking	P	C
8	Replacement water supply or septic systems	C	C
9	Fill as needed to elevate existing structures	C	C
10	Fill	X	X
11	Grading	C	C
12	Road Maintenance	E	E
13	Road Improvements	C	C
14	Bridges and culverts	C	C
15	Channel Management	C	C
16	Recreational Vehicles	P	P
17	Open space, recreation	E	E
18	Forestry	E	E
19	Agriculture/silviculture	E	E
20	Public Utilities	C	C

Quick reference chart of FHO & RCO uses

P Permitted (by ZA)
C Conditional (DRB)
X Prohibited
E Exempt

(F) Exempt Activities

The following are exempt from local regulation under this bylaw, but may require a Flood Hazard Area and/or River Corridor Review from the State:

(1) State-owned and operated institutions and facilities;

(2) Forestry activities as defined at 10 V.S.A. §2602 and conducted in accordance with the Vermont Department of Forests, Parks, and Recreation Acceptable Management Practices;

(3) Required Agricultural Practices, including the construction of farm structures, as those practices are defined by the Vermont Agency of Agriculture, Food, and Markets. Prior to the construction of farm structures, the property owner must provide the Zoning Administrator with written notice of intent to build a farm structure and a site plan or sketch that shows that the structure complies with setbacks.

(4) Public utility power generating plants and transmission facilities and telecommunications facilities regulated under 30 V.S.A. §§248 and 248a.

(G) Variances.

Variances shall be granted by the Development Review Board in accordance with Section 1.8 and 24 V.S.A. §4469, and, provided that:

(1) A variance in the **RCO** may be allowed if, based on a review by Vermont Agency of Natural Resources, it is determined that the proposed development will not obstruct the establishment and maintenance of a geomorphically stable river or stream channel.

(2) Any variance issued in the **FHO** shall not increase flood heights and shall comply with the criteria for granting variances found in 44 C.F.R. 60.6 of the National Flood Insurance Program regulations. The variance will inform the applicant in writing over the signature of a community official that the issuance of a variance to construct a structure below the base flood elevation: (a) increases the risk to life and property, and (b) will result in increased flood insurance premiums up to amounts as high as \$25 for \$100 coverage. Such notification shall be maintained with a record of all variance actions.

(H) Nonconforming Uses and Non-complying Structures.

The Development Review Board may, after public notice and hearing, approve the repair, relocation, replacement, or enlargement of a noncomplying structure or use within the **FHO** and/or **RCO** areas, consistent with Section 3.8 and provided that:

(1) The proposed development is in compliance with all the Development Standards in Table 2.7 (I);

(2) A non-complying structure that is substantially damaged or destroyed may be reconstructed only in circumstances when the structure cannot be relocated to a less hazardous location on the parcel. The lowest floor of the reconstructed structure must be rebuilt to one foot or more above the base flood elevation, and the structure must otherwise comply with all requirements of the National Flood Insurance Program;

(3) An individual manufactured home lot in an existing manufactured home park that is vacated shall not be considered a discontinuance or abandonment of nonconformity.

(I) FHO & RCO Development Standards / District Requirements

The criteria below are the minimum standards for development in the FHO and RCO Areas. Where one district imposes more restrictive standards on the use of land or a structure, the strictest standards shall apply, as authorized under 24 V.S.A., Chapter 117, Section 4414 (2), (Section 2.2(D)).

(1) FHO standards

- A) All development in the FHO shall be reasonably safe from flooding and:
 - 1. Be designed, operated, maintained, modified, and adequately anchored to prevent flotation, collapse, or lateral movement of the structure during the occurrence of the base flood;
 - 2. Be constructed with materials resistant to flood damage;
 - 3. Be constructed by methods and practices that minimize flood damage;
 - 4. Be constructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;

5. Be adequately drained to reduce exposure to flood hazards;
6. Be located as to minimize conflict with changes in channel location over time and the need to intervene with such changes; and
7. Be required to locate any fuel storage tanks (as needed to serve an existing building in the FHO) a minimum of one foot above the base flood elevation and be securely anchored to prevent flotation; or storage tanks may be placed underground, if securely anchored as certified by a qualified professional.

B) Residential Development. Structures to be substantially improved that shall be located such that the lowest floor, including basement, is at least one foot above the base flood elevation. This must be documented, in as-built condition, with a FEMA Elevation Certificate.

C) Non-Residential Development

1. Substantial improvements in FHO shall meet the standards as defined in Section 9.2, Definitions or,
2. Have the lowest floor, including basement, together with attendant utility and sanitary facilities be designed so that, one foot above the base flood elevation, the structure is watertight, with walls substantially impermeable to the passage of water, and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Elevations must be documented for the structure, in as-built condition, with a FEMA Elevation Certificate.
3. A permit for a building proposed to be floodproofed shall not be issued until a registered professional engineer or architect has reviewed the structural design, specifications and plans, and has certified that the design and proposed methods of construction are in accordance with accepted standards of practice for meeting the provisions of this subsection.
4. Subdivisions and Planned Unit Developments that include land within this overlay district must be accessible by dry land access outside this overlay district. New subdivision proposals and other proposed development (including proposals for manufactured home parks and subdivisions) that are greater than 50 lots or 5 acres, whichever is the lesser, shall include base flood elevation data.
5. Fully enclosed areas below grade on all sides (including below grade crawlspaces and basements) are prohibited.
6. Fully enclosed areas that are above grade, below the lowest floor, below Base Flood Elevation and subject to flooding shall:
 - (i) Be used solely for parking of vehicles, building access, or storage, and such a condition shall be clearly stated on any permit.
 - (ii) Be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect, or meet or exceed the following minimum criteria: A minimum of two openings on two walls having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
7. Recreational Vehicles: Recreational Vehicles must be capable of being moved, fully registered and ready for highway use.
8. Accessory Structures. A small accessory building of 500 square feet or less that represents a minimal investment need not be elevated to the base flood elevation, provided the building:
 - (i) Shall not be used for human habitation;

- (ii) Shall be designed to have low flood damage potential;
 - (iii) Shall be constructed and placed on the building site so as to offer the minimum resistance to the flow of floodwaters;
 - (iv) Shall be firmly anchored to prevent flotation; and
 - (v) Shall have service facilities such as electrical and heating equipment elevated or floodproofed.
9. Water Supply Systems. New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems.
10. Sanitary Sewage Systems. Sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.
11. On-Site Waste Disposal Systems. Replacement on-site waste disposal systems shall be located to avoid impairment to the systems or contamination from the systems during flooding.
12. Watercourse Carrying Capacity. The flood carrying and sediment transport capacity within any altered or relocated portion of a watercourse shall be maintained, and any alteration or relocation shall not result in any decrease of stream stability.

(2). RCO Standards

- A) All development within the RCO shall meet the following standards, as applicable:
- 1. Improvements to existing structures, and any associated fill as needed to comply with elevation requirements in the FHO, shall not decrease the distance between the existing primary building and the top of bank;
 - 2. An accessory structure may be located within 50 feet of the existing primary building, provided that its location is greater than the distance between the existing primary structure and the top of bank;
 - 3. Bridge and culvert projects must have a Stream Alteration Permit;
 - 4. Channel management activities must be authorized by the Agency of Natural Resources; and
- B) The Development Review Board, in consultation with the River Management Program (RMP) of the Vermont Agency of Natural Resources, must find that conditional uses within the River Corridor shall not:
- 1. Increase the susceptibility of that or other properties to fluvial erosion damage;
 - 2. Increase the potential of materials being swept onto other lands or into the stream and causing damage to other properties from fluvial erosion; or
 - 3. Cause an undue burden on public services and facilities including roads, bridges, culverts and emergency service providers during and after fluvial erosion events.

(J) Application and Review Process

(1). Application Requirements.

Applications for development shall include:

- A) Where applicable, a site plan that depicts the proposed development, all water bodies, **FHO** Areas, **RCO** areas, the shortest horizontal distance from the proposed development to the top of bank of any stream, any existing and proposed drainage, any proposed fill, and pre and post development grades, and the elevation of the proposed lowest floor, as referenced to the same vertical datum as the elevation on the current Flood Insurance Rate Maps.

B) A Vermont Agency of Natural Resources Project Review Sheet that identifies all State and Federal agencies from which permit approval is required for the proposal. The identified permits, or letters indicating that such permits are not required, shall be submitted to the Zoning Administrator and attached to the permit before work can begin.

(2) Notice:

- A) The Zoning Administrator shall provide a copy of the application and supporting information to the Vermont Agency of Natural Resources, Department of Environmental Conservation, River Management Section, in accordance with 24 V.S.A. §4424. A permit may be issued only following receipt of comments from the Agency or the expiration of 30 days from the date the application was mailed to the Agency, whichever is sooner.
- B) Adjacent communities and the Stream Alteration Engineer at the Vermont Agency of Natural Resources, Department of Environmental Conservation, River Management Section shall be notified at least 30 days prior to issuing any permit for the alteration or relocation of a watercourse and copies of such notification shall be submitted to the Administrator of the National Flood Insurance Program. Any permit issued shall assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained.

(3) Decisions.

The Development Review Board shall consider comments from the National Flood Insurance Program Coordinator at the Agency of Natural Resources. The DRB may recess the proceedings on any application pending submission of additional information.

(4) Records.

The Zoning Administrator shall maintain a record of:

- (a) All permits issued for development in FHO areas;
- (b) An Elevation Certificate with the as-built elevation (consistent with the datum of the elevation on the NFIP maps for the community) of the lowest floor, including basement, of all new, substantially improved, or flood proofed buildings (not including accessory buildings) in the FHO;
- (c) The elevation (consistent with the datum of the elevation on the NFIP maps for the community) to which buildings have been floodproofed;
- (d) All floodproofing certifications required under this regulation; and
- (e) All decisions of the DRB (including variances and violations), including justification for their issuance.

(K) Warning of Disclaimer of Liability

This by-law does not imply that any land or land use will be free from flooding or flood damages, nor shall it create liability on the part of the Town of Calais, or any town official or employee thereof, for any flood or erosion damages.

(L) Enforcement & Penalties

See Section 8.5